

Pre-air Travel Health-Seeking Behaviour, Prevalence of Barotitis Media, its Knowledge and Associated Factors among Recently Travelled Patients in Kano, Nigeria

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Abstract

Introduction: Existing evidence suggests that barotitis media (BM) is common among air travellers, and it has the potential to cause severe discomfort and sometimes permanent hearing and balance deficits. It has not been studied in Nigeria. **Objective:** This study aimed to assess the pre-air travel health-seeking behaviour, prevalence of BM, knowledge of BM and its associated factors among a cohort of outpatients with a history of recent air travel in Kano, Nigeria. **Materials and Methods:** This questionnaire-based survey involved 97 participants systematically and proportionately selected from adult patients or caregivers of children with recent air travel history attending two outpatients clinics over 7 weeks. Information on biodata, pre-air travel advice-seeking behaviours, air travel experience and BM knowledge were obtained. Data were analysed using the descriptive statistical methods, Chi-square or Fisher's exact tests and odds ratio (OR). **Results:** Most participants were male (54.6%) with tertiary education (87.6%); the prevalence of BM was 44.3% (43/97). Only 2.1% (2/97) had ever sought pre-air travel advice from a doctor; 83.5% (81/97) had heard of BM before; 42% had adequate knowledge of BM. Employment status (Fisher's exact, $P = 0.001$), clinic at recruitment (Fisher's exact, $P = 0.00008$), duration of last flight (Fisher's exact, $P = 0.0001$) and persistent ear-pain after landing (Fisher's exact, $P = 0.001$) were significantly associated with participants' knowledge of BM. Persistent ear-pain after landing was the predictor of BM knowledge (OR = 0.04, 95% confidence interval [0.002–0.67], $P = 0.025$). **Conclusion:** The BM knowledge level of this cohort suggests the need for further studies to ascertain the complete picture and justify improved pretravel education of air travellers in our setting.

Keywords: Air travel, barotitis media, knowledge, outpatients, pre-air travel advice, prevalence

INTRODUCTION

Air travel barotitis media (BM), also known as otic barotrauma, is a common middle-ear condition caused by inadequate pressure equalisation between the middle ear space and the external environment.^[1,2] It typically presents with ear discomfort or pain, mainly during the ascent and descent of the aircraft, or afterwards. This results from gas expansion, based on Boyle's law. The aircraft ascent causes decreased cabin pressure and gases expansion, while descent causes decreased cabin pressure and contraction of body gases. The expansion of body gases results in air escape from the middle ear and sinuses, leading to discomfort often perceived as a 'popping sensation'

in the ears.^[3] However, air must flow back into the middle ear and sinuses during aircraft descent to equalise the pressure difference through the Eustachian tubes. Blocked Eustachian tubes result in the sucking-in of the tympanic membrane (TM), draining of fluid from the surrounding tissues into the middle ear, hearing impairment, sometimes rupture of the TM, serous or bloody otorrhoea, occasional dizziness, etc.^[4,5] Occasionally, BM can be severe, with associated permanent complications such as hearing and balance deficits and tinnitus.^[2,6] This

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makes prevention and recognition of BM among air travellers necessary. Furthermore, BM can also occur among persons in a hyperbaric chamber or during deep-sea diving (scuba divers) or from blunt force trauma/blast injuries to the external auditory canal.^[1,2,7,8] It can be diagnosed from a careful history and by otoscopy.^[2] After a flight, the incidence and prevalence of BM depend on the type of aircraft, altitude reached and passengers characteristics^[6] and varies from 4.1% to 82%.^[2] One study reported an otoscopic point prevalence of 10% in adults and 22% in children after a flight.^[6,9]

In developed countries (e.g. the United States), a pretravel health-care visit is common;^[10] however, this a poorly embraced health-seeking behaviour in Nigeria. The closest to pre-air travel health assessment in Nigeria is perhaps seen during the annual mass religious pilgrimages to Saudi Arabia and Israel. However, it is not comprehensive and uncoordinated. Fortunately, most travel-related problems are preventable, especially with appropriate, well-organised, evidence-based pretravel planning and adherence to safety measures.^[10] The study site is the foremost health-care facility visited by pilgrims for travel-related ailments.

Moreover, available literature revealed no study on air travel and BM in Nigeria. Therefore, this preliminary study aimed to assess the knowledge of BM and its associated factors among a cohort of patients with a history of recent air travel in Kano.

MATERIALS AND METHODS

Study design and setting

This study was a descriptive, cross-sectional study conducted from January 2 to February 13, 2019, at the General Outpatient Clinic (GOPC) and Retainership Clinic (RC) of a tertiary hospital in Kano, North-west Nigeria. Both clinics render outpatient services for undifferentiated non-emergent conditions, while deserving patients are referred to the hospital's other specialty clinics. They are overseen by the department of family medicine of the hospital. A pilot study showed an average weekly attendance of 30 and 10 adult patients/caregivers of children with a history of recent air travel at the RC and GOPC, respectively.

Study population

The study population comprised of all adult patients/caregivers of children attending both clinics who had at least one air travel in the preceding 6 months to the study period.

Eligibility criteria

All adults (≥ 18 years) patients or caregivers of children with a history of air travel in the preceding 6 months were included in this study. Patients with emergent conditions or caregivers who have children with emergent conditions, patients with cleft palate (whether repaired or not) or other congenital anomalies of the upper aerodigestive tract, patients who could not recall previous events and those who declined consent to participate in the study were excluded.

Sample size estimation

The sample size of 103 was calculated using Epi info version 7.2.4, considering a 95% confidence interval (CI), 10% prevalence,^[6] a finite population of 280 patients/caregivers of children with a history of recent air travel over the 7 weeks study period and a missing data/nonresponse rate of 10%.

Sampling technique and study protocol

A sampling interval of 3 was obtained by dividing the sampling frame by the sample size ($280/108 \approx 3$). At the beginning of each clinic day, a list of the patients who had recent air travel was obtained at registration. From the list, every third patient or caregiver who met inclusion criteria was systematically recruited after the first had been selected by balloting. Participants were recruited proportionately from the two clinics at a ratio of 3:1 (RC: GOPC) until the sample size was reached. A minimum sample size of 76 and 26 participants was allocated for recruitment at the Retainership and GOPCs.

Definition and measurement of variables

1. BM was defined as developing symptoms (namely, ear discomfort, ear pain and hearing impairment) during flight commencement (ascent), during the flight or descent or immediately upon disembarking from the aircraft. This was assessed using the question: *Did you experience ear discomfort, ear pain or hearing problem during your last air travel?* The expected responses were 'Yes' or 'No,' or 'I can't remember'. A response of 'Yes' was regarded as the presence of BM, whereas a response of 'No' or 'I can't remember' were regarded as the absence of BM
2. The preair travel health-seeking behavior of participants was assessed using the question: *Have you ever gone to your doctor for advice before air travel?* The expected responses were 'Yes' and 'No'
3. The overall knowledge of BM (i.e. the outcome variable) was assessed using five questions, with a score of 1 for each correct answer and zero for incorrect answer. Their scores were then converted to percentages. According to the knowledge categorisation by Michael *et al.*, their overall knowledge of BM was categorized into poor (for scores 0%–49.9%), average (50.0%–69.9%), and good ($>70\%$); it was also described as inadequate ($<70\%$) and adequate (70%–100%).^[11]

Data collection

We designed and pretested a structured investigator-administered questionnaire for the data collection. The internal validity of the questionnaire was determined using Cronbach's alpha, of which a value of 0.81 was obtained. Information collected were participants' sociodemographic characteristics, preair travel advice-seeking behaviour, air travel experience and their knowledge regarding BM.

Ethical considerations

Ethical approval (NHREC/21/08/2008/AKTH/EC/2251) was obtained from the hospital's Health Research and Ethics Committee before commencing the study. Written

informed consent was obtained from each participant before questionnaires were administered. Data collected were kept confidential. The reason for the clinic encounter was also addressed irrespective of their consent to participate in the study or not.

Data analysis

Data were collected and entered using the Epi Info Version 7.2.4. (2016; CDC, Atlanta, GA, USA). The categorical variables were summarized using percentages; quantitative variables were summarized with means (and standard deviation) or median (and interquartile range [IQR]) depending on the distribution. At bivariate analysis, the Chi-square test was used to assess the association between participants' characteristics and overall knowledge of BM. Statistical significance was set at a $P < 0.05$. In building a logistic regression model, the participants' characteristics were the independent variables. It included participants' characteristics that were significant ($P < 0.05$) or were near significant ($P < 0.25$)^[12] at the bivariate level of analysis. Educational level was considered *a priori* confounding variable and was added to the final model.

RESULTS

Sociodemographic characteristics of participants

A total of 97 participants (RC = 76, GOPC = 21) representing 94.2% response rate were recruited and analysed. Their mean age was 39.0 ± 10.8 years (range: 19–65 years). Most were males (53, 54.6%), married (79, 81.5%) and had employment (83, 85.6%) [Table 1]. Most participants also had tertiary education (85, 87.6%), were Hausas (53, 54.6%) and Muslims (79, 81.4%).

Pre-air travel advice-seeking behaviour

Ninety-five participants (97.9%) had never asked their doctor for advice before air travel, while only 2 (2.1%) had asked for advice.

Participants air travel experience

Most participants reported travelling by air occasionally (58, 59.8%) [Table 2]. A preponderance of participants (83, 85.6%) had ≥ 3 h flight (long haul) during their last air travel, with a median (IQR) duration of 6 (4–7) hours. Twenty-seven (27.8%) participants had a cold/flu before their last flight, whereas 41 (42.3%) had a history of allergy. Forty-three (44.3%) experienced ear pain, hearing loss or ear discomfort (i.e. BM) during their last flight, while 54 (55.7%) did not. Of those with BM, 13 (30.2%) had their ear pain persisting between 2 and 96 h after landing. Three of those with BM saw a doctor and reported having been told that medications or a combination of drugs and surgical interventions could be used to treat BM.

Knowledge of barotitis media among participants

A preponderance of participants (81, 83.5%) had heard of BM before [Table 3]. Of those aware of BM, only 22 (27.2%) correctly reported that BM could cause serious harm. Thirty (37.0%) participants did not know what causes BM,

Table 1: Sociodemographic characteristics of participants

Variables	n (%)
Age	
≤29	18 (18.6)
30–39	38 (39.2)
40–49	23 (23.7)
50–59	13 (13.4)
60–69	5 (5.2)
Sex	
Male	53 (54.6)
Female	44 (45.4)
Marital status	
Single	17 (17.5)
Married	79 (81.5)
Widow	1 (1.0)
Employment status	
Works for government (CS)	17 (17.5)
Works for private organization	29 (29.9)
Self employed	37 (38.2)
Retired CS	3 (3.1)
Unemployed	4 (4.1)
Student	7 (7.2)
Educational level	
Secondary	12 (12.4)
Tertiary	85 (87.6)
Ethnicity	
Hausa	53 (54.6)
Fulani	16 (16.5)
Igbo	10 (10.3)
Yoruba	9 (9.3)
Others	9 (9.3)
Religion	
Islam	79 (81.4)
Christianity	18 (18.6)
Clinic at recruitment	
GOPC	21 (21.7)
RC	76 (78.3)

GOPC: General outpatient clinic, RC: Retainership clinic, CS: Civil servant

while 29 (35.8%) believed only increased cabin pressure causes it. Sixty-five (80.3%) correctly reported that BM could be prevented or reduced; of these ($n = 65$), a greater proportion (27, 41.5%) correctly reported that decongestant pills or chewing gum or sucking sweets could be used to prevent BM. More than half (58.0%) of the participants had inadequate overall knowledge of BM (i.e. poor or average overall knowledge).

Factors associated with overall knowledge of barotitis media among participants

Regarding participants' sociodemographic characteristics, there were statistically significant associations between employment type (Fisher's exact, $P = 0.001$), the clinic at recruitment (Fisher's exact, $P = 0.00008$), and overall knowledge of BM [Table 4]. On the other hand, there were no significant associations between age, sex, marital status,

Table 2: Participants' air travel experience

Variables	n (%)
Frequency of air travels	
Frequently	36 (37.1)
Occasional	58 (59.8)
Fortnightly	1 (1.0)
Rarely	2 (2.1)
Duration between survey and last air travel (days)	
2-41.9	42 (43.3)
42.0-140	55 (56.7)
Mean	49.1
Median	42.0
Range	2.0-140.0
SD	35.2
IQR	21.0-56.0
Duration of last flight (h)	
<3	14 (14.4)
≥3	83 (85.6)
Mean	6.1
Median	6.0
Range	1.0-16.0
SD	3.8
IQR	4.0-7.0
Had cold/flu/ear fullness before last flight	
Yes	27 (27.8)
No	64 (66.0)
I can't remember	6 (6.2)
History of allergy	
Yes	41 (42.3)
No	56 (57.7)
Barotitis media (ear pain/hearing loss/ear discomfort during last flight)	
Yes	43 (44.3)
No	54 (55.7)
Persistence of ear pain/hearing loss/discomfort after landing (n=43)	
Yes	13 (30.2)
No	30 (69.8)
Duration of persistent ear pain after landing (h)	
Mean	46.5
Median	48.0
SD	25.2
IQR	24.0-60.0
Range	2.0-96.0
What was done to persisting ear pain (n=13)	
Use OTC medication	3 (23.1)
See a doctor	3 (23.1)
Do nothing (resolved spontaneously)	7 (53.8)
Satisfaction with visit to doctor for ear pain (n=3)	
Yes	3 (100.0)
No	0 (0.0)
Treatment options explained by doctor (n=3)	
Medications	1 (33.3)
Combined therapy (medications, nasal maneuvers, and surgery)	2 (66.7)

SD: Standard deviation, IQR: Interquartile range, OTC: Over the counter

ethnicity, religion, pre-air travel advice-seeking behaviour and overall knowledge of BM. Regarding their air travel

Table 3: Knowledge of barotitis media among participants

Variable	n (%)
Have you heard of ear pain during a flight before?	
Yes	81 (83.5)
No	16 (16.5)
Do you think the ear pain can cause serious harm? (n=81)	
Yes	22 (27.2)
No	50 (61.7)
I don't know	9 (11.1)
What do you think causes the ear pain? (n=81)	
Reduced cabin pressure	20 (24.7)
Increased cabin pressure	29 (35.8)
All of the above	2 (2.5)
I don't know	30 (37.0)
Do you think this ear pain can be prevented? (n=81)	
Yes	65 (80.3)
No	1 (1.2)
I don't know	15 (18.5)
If you think this ear pain can be prevented, what ways can it be prevented? (n=65)	
Postpone the trip if one has catarrh, cold, sinus infection, or an allergy attack	2 (3.1)
Take a decongestant pill or nose spray approximately an hour before descent	8 (12.3)
Chew gum or suck sweets before take-off and during descent	8 (12.3)
Perform a gentle valsalva when the pain starts	7 (10.8)
Avoid sleeping during airplane descent	0
All of the above	7 (10.8)
None of the option listed	6 (9.2)
N take a decongestant pill and chew gums/suck sweets	27 (41.5)
Overall knowledge of Barotitis media (n=81)	
Poor (0%-49.9%)	27 (33.3)
Average (50%-69.9%)	20 (25.7)
Good (70%-100%)	34 (42.0)
Inadequate	47 (58.0)
Adequate	34 (42.0)

experience, their last flight duration (Fishers exact, $P=0.0001$) and having persistent ear pain after landing (Fisher's exact, $P=0.001$) were significantly associated with overall knowledge of BM [Table 5].

Predictors of overall knowledge of barotitis media

Logistic regression was used to adjust for participants' age, clinic at recruitment, employment status, educational level, ethnicity, frequency of air travels, duration of last flight, persistent ear pain after landing, history of allergy and presence of BM [Table 6]. Participants without persistent ear pain after landing were less likely to have adequate overall knowledge of BM (odds ratio = 0.04, 95% CI [0.002–0.67], $P=0.025$). Conversely, participants with persistent ear pain were more likely to have adequate overall knowledge of BM.

DISCUSSION

This hospital-based survey among outpatients with a history of recent air travel had the following main findings: 97.9%

Table 4: Association between participants sociodemographic variables and knowledge of barotitis media

Variables	Inadequate knowledge, <i>n</i> (%)	Adequate knowledge, <i>n</i> (%)	Test statistics (χ^2)	<i>P</i>
Age				
<29	11 (23.4)	4 (11.8)	-	0.056 ^f
30-39	15 (31.9)	16 (47.1)		
40-49	9 (19.2)	11 (32.3)		
50-59	7 (14.9)	3 (8.8)		
60-69	5 (10.6)	0 (0.0)		
Sex				
Male	25 (53.2)	19 (55.9)	0.058	0.810
Female	22 (46.8)	15 (44.1)		
Marital status				
Single	8 (17.0)	3 (8.8)	-	0.250
Married	38 (80.9)	31 (91.2)		
Widow	1 (2.1)	0 (0.0)		
Employment				
Unemployment	1 (2.1)	2 (5.9)	-	0.001 ^{f,*}
CS	3 (6.4)	13 (38.2)		
Retired CS	3 (6.4)	0		
Self employed	22 (46.8)	7 (20.6)		
Works for private organization	14 (29.8)	11 (32.4)		
Student	4 (8.5)	1 (2.9)		
Educational level				
Secondary	5 (10.6)	2 (5.9)	-	0.693
Tertiary	42 (89.4)	32 (94.1)		
Ethnicity				
Hausa	29 (61.7)	18 (52.9)	-	0.179 ^f
Fulani	7 (14.9)	7 (20.6)		
Igbo	4 (8.5)	0 (0.0)		
Yoruba	4 (8.5)	5 (14.7)		
Others	3 (6.4)	4 (11.8)		
Religion				
Islam	41 (87.2)	30 (88.2)	-	1.000 ^f
Christianity	6 (12.8)	4 (11.8)		
Clinic at recruitment				
GOPC	3 (6.4)	15 (44.1)	-	0.00008 ^{f,*}
RC	44 (93.6)	19 (55.9)		

*Significant, ^fFisher's exact test. GOPC: General outpatient clinic, RC: Retainership clinic, CS: Civil servant

of participants had never sought pre-air travel advice before; the prevalence of BM was 44.3%; 42% had adequate overall knowledge of BM; employment status, clinic at recruitment, duration of flight, and persistent ear pain after landing were associated with overall knowledge of BM; persistent ear pain after landing was the predictor of overall knowledge of BM.

We found that nearly all the participants had never sought pretravel advice before. This proportion of air travellers is higher than 46% of air travellers heading to low- and middle-income countries (LMIC) at Boston airport who did not seek health advice before their trip.^[13] However, both findings suggest that pretravel health visit is a poorly embraced activity among air travellers from the LMIC (Nigeria inclusive). This behaviour may be due to the lack of dedicated pretravel health-care facilities, busy outpatient clinics and lack of air-traveller education on pretravel health-care services.

A BM prevalence of 44.3% among the participants was high compared to 10% obtained by Wright,^[6] This difference could be because this study adopted a symptom prevalence compared with otoscopic prevalence. However, this result is consistent with previous reports that range from 4.1% to 82%.^[2,5,6] Air travel BM prevalence varies depending on the aircraft, the altitude reached and passenger characteristics.^[6] One passenger-related risk factor for air travel BM is upper respiratory tract infections (URTIs) before a flight.^[3] About 28% of the study participants recalled having a cold or flu or ear fullness before their flight. URTIs can block the eustachian tubes, which is fundamental in the aetiology of air travel BM. Moreover, this suggests that some incidences of BM among the participants could have been prevented. A preair travel visit to a travel medicine clinic/practitioner would avail the potential air traveller with appropriate information. Such information will include postponing the travel until the URTI

Table 5: Association between participants' experience variables and knowledge of barotitis media among participants

Variables	Inadequate knowledge, <i>n</i> (%)	Adequate knowledge, <i>n</i> (%)	χ^2	<i>P</i>
Ever sought preair travel advice from your doctor				
No	47 (100.0)	32 (94.1)	-	0.173 ^f
Yes	0 (0.0)	2 (5.9)		
Frequency of air travels				
More frequent ^a	22 (46.8)	11 (32.3)	1.708	0.191
Less frequent ^{aa}	25 (53.2)	23 (67.7)		
Duration between survey and the last flight (days)				
<42	18 (38.3)	17 (50.0)	1.101	0.294
≥42	29 (61.7)	17 (50.0)		
Duration of last flight (h)				
<3 (short haul)	1 (2.1)	11 (32.3)	-	0.0001 ^{f,*}
≥3 (long haul)	46 (97.9)	23 (67.7)		
Cold/flu/ear fullness before last flight				
No	35 (74.5)	22 (64.7)	0.902	0.342
Yes	12 (25.5)	12 (35.3)		
History of allergy				
No	28 (59.6)	15 (44.1)	1.893	0.169
Yes	19 (40.4)	19 (55.9)		
Experience of ear pain in last flight (barotitis media)				
No	26 (55.3)	14 (41.2)	1.579	0.209
Yes	21 (44.7)	20 (58.8)		
Persistence of ear pain after landing during last flight				
No	45 (95.7)	23 (67.7)	-	0.001 ^{f,*}
Yes	2 (4.3)	11 (32.3)		
Duration of ear pain after landing (h)				
<48	1 (50.0)	5 (45.4)	-	0.731 ^f
≥48	1 (50.0)	6 (54.6)		
What was done for persisting ear pain				
OTC medication	1 (50.0)	2 (18.2)	-	0.524 ^f
See doctor	0 (0.0)	3 (37.3)		
Did nothing (resolved spontaneously)	1 (50.0)	6 (54.5)		

*Significant, ^aFrequently, ^{aa}Occasionally, ^ffortnightly and rarely, ^fFisher's exact test. OTC: Over the counter

resolves. If the trip cannot be postponed, decongestant nasal drops before the flight and just before descent were previously recommended; however, current evidence suggests they are ineffective, but oral pseudoephedrine or nasal balloon inflation are beneficial.^[3,6,9] Chewing, swallowing and yawning can be used to reduce ear discomfort from BM as they aid the opening of the Eustachian tubes.^[3] A short, forceful expiration against a pinched nose and closed mouth (Valsalva maneuver) can also help if the ear discomfort persists.^[3]

Furthermore, besides its association with permanent hearing and balance complications, air travel BM has also been associated with severe life-threatening complications such as acute bacterial meningitis after a flight.^[14] Hence, the need for adequate information regarding BM. In this study, about 84% of participants were aware of this condition, but less than half had sufficient overall knowledge of BM. Most were ignorant of its cause or its ability to cause serious complications. A significant proportion neither knew that BM could be prevented or reduced nor knew its preventive measures. The knowledge gap observed in this cohort suggests the need for appropriate intervention.

Expectedly, more participants with gainful employment and those recruited from the RC had adequate overall knowledge of BM than those who were unemployed or recruited from the GOPC. These findings could be because air travel in Nigeria is expensive and generally undertaken by upper social class people. Moreover, from the price list of hospital charges, the service fees at the RC are twice the cost of similar services at the GOPC; this suggests that the RC patients could be from upper social class families.

Furthermore, more participants had adequate overall knowledge of BM among those who undertook long-haul flights. While the link between having sufficient overall knowledge and long-haul flights cannot be completely deciphered, we suspect that more long-haul flight passengers were probably on international flights and may have been exposed to some information regarding BM.

Finally, we also observed that ear pain persisting after landing was associated with BM overall knowledge and was the only predictor of overall knowledge of BM among participants after

Table 6: Predictors of knowledge of barotitis media among participants

Variable	OR	95% CI	P
Age			
≥50/<50	0.24	0.04-1.25	0.090
Clinic at recruitment			
RC/GOPC	0.15	0.01-1.54	0.109
Employment status			
Unemployed ^a /employed ^{aa}	6.83	0.56-83.36	0.132
Educational level			
Tertiary/secondary	0.52	0.06-4.96	0.571
Air travel frequency			
Less ^b /more ^{bb}	2.54	0.64-10.10	0.185
Duration of last flight (h)			
≥3/<3	0.39	0.02-8.35	0.549
Persistent ear pain after landing			
No/yes	0.04	0.002-0.67	0.025*
History of allergy			
No/yes	0.71	0.15-3.27	0.655
Experience ear pain in last flight (barotitis media)			
No/yes	1.23	0.31-5.14	0.749
Ethnicity			
Non-Hausa-Fulani/Hausa-Fulani	0.35	0.07-1.57	0.167
Ever sought pretravel advice from your doctor			
No/yes	0.0	0-1.00	1.0

*Significant, ^aUnemployed, retired CSs, students, ^{aa}CSs, self employed, work for private organization, ^bOccasional, fortnightly, rarely,

^{bb}Frequently. OR: Odds ratio, CI: Confidence interval, RC: Retainership clinic, GOPC: General outpatient clinic, CSs: Civil servants

adjusting for other confounding variables. Thus, participants whose ear pain continued after landing were more likely to have adequate knowledge of BM. This finding could be because those with persistent pain are more likely to seek help and are more likely to be exposed to BM-related information.

Study weaknesses and strengths

This study had some weaknesses. First, recall bias could not be eliminated since many questions depended on recalling previous flight experiences. Second, the lack of similar knowledge studies in this domain made comparison difficult. Finally, the sample size was small, suggesting the need for a large scale study. However, this study was carried out using a random sampling technique, the study tool had acceptable internal validity, and it is the first published study that has attempted to assess the prevalence of BM, its knowledge, and associated factors among air travellers in Nigeria; thus, it also serves as an essential baseline for future studies.

CONCLUSION

Air travel BM was common among participants; their pretravel healthcare-seeking behavior was poor, and their overall knowledge of BM was inadequate. Therefore, there is the need for further studies in this domain to ascertain the complete picture and justify any improvements in pretravel

education of air travellers that will prevent avoidable morbidities and mortalities.^[15,16] This also calls for the attention of policy-makers to increase investment in making pretravel clinics/centres accessible in the community if the complete prevalence and knowledge of BM is established. Campaigns to encourage pretravel health-care-seeking behaviour in the community is also needed.

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Conflicts of interest

There are no conflicts of interest.

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